REMARKS

The Office Action dated May 6, 2004 has been received and carefully noted. The above amendments to the claims and the following remarks, are submitted as a full and complete response thereto.

Claims 9 and 13 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claim 10-12 and 14-16 have been cancelled without prejudice. Claim 17 has been added. No new matter has been added. Claims 9, 13, and 17 are respectfully submitted for consideration.

The Office Action objected to claims 9-11 due to certain informalities. With respect to claim 9, the Official Action objected to the final clause which recites "wherein placing said impedance converting means entirely between the interface of the low-pass filter block on the transmission link side and said first interface." The Office Action asserted that the clause lacks the necessary predicate to constitute a method step. That section of the claim has been amended to recite "wherein said discrete active impedance converting means is placed entirely between the interface of the low-pass filter block on the transmission link side and said first interface." Claims 10 and 11 have been cancelled. Therefore, the objection to claims 9-11 is rendered moot.

Claims 9-15 were rejected in the Office Action under 35 U.S.C. §102(e) as being anticipated by Snow (U.S. Patent No. 6,418,221 B1). The rejection is respectfully traversed for the reasons which follow.

Claim 9 recites a method for implementing narrowband and broadband services on a transmission link of a telecommunications network having a frequency-dependent characteristic impedance. The method includes the step of transferring signals belonging to a narrowband service in a first frequency range below a given threshold frequency and signals belonging to a broadband service in a second frequency range above said threshold frequency in the transmission link. The method also includes the step of connecting a splitter element to the transmission link, the splitter element comprising a passive low-pass filter block connected between the transmission link and a first interface and a high-pass filter unit connected between the transmission link and a second interface. Signals relating to narrowband service are separated to the first interface by means of the low-pass filter block and signals relating to broadband service are separated to the second interface by the high-pass filter unit. The splitter element also comprises discrete active impedance converting means for adapting the first interface to the characteristic impedance of the transmission link, whereby the discrete active impedance converting means conduct the adapting independently without external control. Wherein the discrete active impedance converting means is placed entirely between the interface of the low-pass filter block on the transmission link side and said first interface.

Claim 13 recites a splitter element in a telecommunications system for separating signals transferred in different frequency ranges. The splitter element includes a line port connected to a transmission link having a frequency-dependent characteristic impedance, a low-pass filter block connected between the line port and a first interface, said first

interface being intended for signals transferred in a lower frequency range, a high-pass filter connected between the line port and a second interface which is intended for signals transferred in a higher frequency range, and discrete active converting means for adapting the first interface to the characteristic impedance of the transmission link, whereby the discrete active impedance converting means conduct the adapting independently without external control. The discrete active impedance converting means are fitted entirely between the interface of the low-pass filter block on the transmission link side and said first interface.

Claim 17 recites a method for implementing narrowband and broadband services on a transmission link of a telecommunications network, having a frequency-dependent characteristic impedance. The method includes transferring signals belonging to a narrowband service in a first frequency range below a given threshold frequency and signals belonging to a broadband service in a second frequency range above said threshold frequency in the transmission link. The method further includes connecting a splitter element to the transmission link, the splitter element comprising a passive low-pass filter block connected between the transmission link and a first interface and a high-pass filter unit connected between the transmission link and a second interface, signals relating to narrowband service being separated to the first interface by means of the low-pass filter block and signals relating to broadband service being separated to the second interface by the high-pass filter unit, and discrete impedance converting means for adapting the first interface to the characteristic impedance of the transmission link. The

impedance converting means conduct the adapting independently without external control and the impedance converting means is placed entirely between the interface of the low-pass filter block on the transmission link side and said first interface. The low-pass filter block is implemented as an LC network having inductances and capacitances, and a part of the impedance converting means is implemented by adding at least one resistor element to said network in parallel with capacitors and inductors of the low pass filter.

The cited prior art reference of Snow fails to disclose all of the elements of the claims, and therefore fails to provide the features discussed above.

Snow discloses a signal coupler where data and POTS signals from a subscriber are directed, after a protection circuit 101, to a low pass filter 109 passing the POTS signal and to a high pass filter 106 passing the data signal. The low pass filtering is shifted to areas of the signal coupler circuit which do not operate with the high battery voltage present on telephone lines. The low voltage filtering reduces the need for components which are capable of operating in the high voltage environment and reduces the space on the circuit board which is occupied by each of the signal couplers.

Applicants respectfully submit, however, that Snow fails to disclose or suggest using a discrete active impedance converting element, such as a GIC block, for adapting the first interface to the characteristic impedance of the transmission link, as recited in claims 9 and 13.

The resistors R3-R6 disclosed in Snow do not correspond to the active impedance converting means recited in the present invention. In Snow, all elements in the low pass filter circuitry are standard passive electronic components. Furthermore, resistors R3 and R4, and R5 and R6, respectively, are of equal resistance (Snow, Column 5, lines 41-51), and cannot function as impedance converting means.

The present invention, as recited in the claims, includes an impedance converting means. Teleoperators determine the viability of filters by a reference impedance, which is defined so as to correspond to the actual impedance of the subscriber link. The filter must provide a sufficiently good impedance match to the reference impedance in the voice band. A perfect match is achieved when the output impedance of the generator concurs with the load impedance. The operators estimate the viability of filter units by feeding to a load impedance, which is equal to the reference impedance, a signal from a generator whose output impedance also equals the reference impedance (Specification, Page 4, line 8 – Page 5, line 28). Consequently, in the present invention, impedance matching is obtained using discrete active impedance converting means.

A GIC (Generalized Immittance Converter) block, which is a discrete correction block for correcting impedance matching, is by definition an active network element. Figures 13 and 14 of the present application illustrate embodiments of impedance converting GIC blocks. Operation amplifiers (OP) are also part of the impedance matching circuitry. An operation amplifier is a basic electronic component and is an

active component. This requires a supply voltage to be operative. Therefore, a GIC block is an example of an active impedance converting means.

Snow, as discussed above, fails to disclose or suggest such active impedance converting means. Resistors R3-R6 disclosed in Snow are not active impedance converting means as recited in the present invention. Additionally, as disclosed by Snow, all elements in the low pass filter circuitry are standard passive electronic components. Therefore, Snow fails to disclose or suggest using a discrete active impedance converting element, such as a GIC block, for adapting the first interface to the characteristic impedance of the transmission link, as recited in claims 9 and 13.

With respect to new claim 17, applicants note that resistors R3-R4 and R5-R6 disclosed in Snow are placed in series with capacitors and inductors of the low pass filter 109. Placing the resistors in series makes the function of the resistors, specifically that of dropping an amount of voltage, quite different from the function of resistors RL1'-RL2'' of the present application. In the present application, the resistors are being introduced in parallel with capacitors and inductors of the low pass filter. The function of the resistors placed in parallel is to shape the characteristic impedance of the filter to include complex factors, as explained in the present application, (Specification, page 10, lines 29-32).

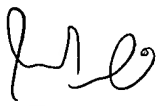
Applicants respectfully submit that the prior art reference of Snow fails to disclose or suggest critical and important elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It

is therefore respectfully requested that all of claims 9, 13, and 17 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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